

IN THE CLAIMS

The following claim set replaces all prior versions, and listings, of claims in the application:

1. (Previously Presented) A method for removing excess fluid from a patient comprising:
 - a. inserting a withdrawal catheter into a first peripheral blood vessel in the patient;
 - b. withdrawing blood through the catheter in the first peripheral blood vessel in the patient;
 - c. sensing a withdrawal pressure of the blood;
 - d. adjusting a withdrawal blood flow rate based on the sensed withdrawal pressure;
 - e. filtering the withdrawn blood through a filter to separate the excess fluid from the blood, wherein the filter has a filter membrane surface area of no greater than 0.2 m^2 ;
 - f. infusing the filtered blood into a second peripheral blood vessel in the patient;
 - g. wherein a blood flow through the filter is less than two percent of a total cardiac output of the patient, and a flow of the excess fluid removed from the blood is no greater than 1.0 liters per hour.

2. (Previously Presented) A method as in claim 1 wherein the excess fluid removed from the blood is no greater than 30 percent of a volume of the removed blood.
3. (Previously Presented) A method as in claim 1 wherein the step of filtering is performed by sieving the blood through a filter to remove excess fluid.
4. (Previously Presented) A method as in claim 1 further comprising the step of pumping the withdrawn blood with a blood pump at a rate of less than 100 milliliters (ml) per minute.
5. (Cancelled)
6. (Previously Presented) A method as in claim 1 wherein a rate of blood withdrawal is in a range of 40 to 60 milliliters per minute, and a rate of removal of the excess fluid is no greater than 16 milliliters per minute.
7. (Cancelled)
8. (Previously Presented) A method as in claim 4 wherein the blood pump stops upon detection of a blockage of blood flow in the blood being withdrawn.
9. (Previously Presented) A method as in claim 1 wherein the blood pump stops upon detection of a air bubble in the withdrawn or filtered blood .
10. (Original) A method as in claim 1 wherein the first peripheral blood vessel is a vein.
11. (Original) A method as in claim 1 wherein the second peripheral blood vessel is a vein.

12. (Original) A method as in claim 1 wherein the first and second peripheral blood vessel are the same vein.
13. (Original) A method as in claim 1 wherein the filter includes capillary, hollow fibers.
14. (Original) A method as in claim 13 wherein the hollow fibers have filtering pores which retain in the blood solutes greater than 50,000 Daltons.
15. (Original) A method as in claim 13 wherein the hollow fibers have blood passages of approximately 0.2 mm or less in diameter.
16. (Cancelled)
17. (Original) A method as in claim 1 wherein the blood flow through the filter causes a wall shear rate of the blood between $1,000 \text{ sec}^{-1}$ per seconds and 2,500 per seconds.
18. (Original) A method as in claim 1 wherein the filtration is ultrafiltration.
19. (Original) A method as in claim 1 further comprising minimizing extraction of solutes during filtration.
20. (Original) A method as in claim 1 further comprising extracting primarily water as the fluid removed from the blood during filtration.
21. (Original) A method as in claim 1 wherein blood flows continuously through the filter during periods in which a blood pump is pumping the removed blood.
22. (Original) A method as in claim 1 wherein excess fluid removed from blood flows intermittently from the filter.

23. (Original) A method as in claim 22 wherein a valve in a flow path from the filter for removal of excess fluid cyclically stops and starts the flow of excess fluid from the filter.
24. (Original) A method as in claim 1 wherein a total amount of extracorporeal blood is not greater than 100 milliliters.
25. (Original) A method as in claim 1 wherein said fiber includes less than 1000 filtering fibers.
26. (Previously Presented) A method as in claim 1 wherein the withdrawn blood is returned to the patient within two minutes.
27. (Previously Presented) A method for removing excess fluid from a patient comprising:
 - a. withdrawing blood from a catheter inserted into a first blood vessel of the patient;
 - b. monitoring a pressure of the blood being withdrawn and controlling a blood withdrawal rate based on the monitored pressure;
 - c. condensing the withdrawn blood through a filter to separate the excess water from the blood, wherein the filter has filter membrane surface area of no greater than 0.2 m^2 ;
 - d. returning the condensed blood into a second blood vessel in the patient;

- e. wherein a blood flow through the filter is less than two percent of a total cardiac output of the patient, and a flow of the excess fluid removed from the blood is no greater than 1.0 liters per hour.
- 28. (Previously Presented) A method as in claim 27 wherein the excess fluid removed from the blood is no greater than 30 percent of a volume of the removed blood.
- 29. (Original) A method as in claim 27 wherein the step of filtering is performed by sieving the blood through a filter to remove excess water.
- 30. (Original) A method as in claim 27 further comprising the step of pumping the removed blood with a blood pump at a rate of less than 100 milliliters (ml) per minute.
- 31. (Original) A method as in claim 27 wherein a rate of the removal of blood is no greater than 60 milliliters per minute, and a rate of removal of the excess water is no greater than 16 milliliters per minute.
- 32. (Previously Presented) A method as in claim 27 wherein a rate of the removal of blood is in a range of 40 to 60 milliliters per minute, and a rate of removal of the excess water is no greater than 16 milliliters per minute.
- 33. (Cancelled).
- 34. (Previously Presented) A method as in claim 30 wherein the blood pump stops upon detection of a blockage of blood flow in the blood being removed in step (b).
- 35. (Previously Presented) A method as in claim 30 wherein the blood pump stops upon detection of a air bubble in the blood during any of steps (b), (c) and (d).

36. (Currently Amended) A method as in claim 27 wherein the first ~~peripheral~~ blood vessel is a vein.
37. (Currently Amended) A method as in claim 27 wherein the second ~~peripheral~~ blood vessel is a vein.
38. (Currently Amended) A method as in claim 27 wherein the first and second ~~peripheral~~ blood vessels are the same vein.
39. (Original) A method as in claim 27 wherein the filter includes capillary, hollow fibers.
40. (Original) A method as in claim 39 wherein the hollow fibers have filtering pores which retain in the blood solutes greater than 50,000 Daltons.
41. (Original) A method as in claim 39 wherein the hollow fibers have blood passages of approximately 0.2 mm or less in diameter.
42. (Previously Presented) A method as in claim 38 wherein the filter has a trans-membrane pressure (TMP) no greater than 250 millimeters (mm) of mercury (Hg).
43. (Original) A method as in claim 27 wherein the blood flow through the filter causes a shear rate of the blood between $1,000 \text{ sec}^{-1}$ per seconds and 2,500 per seconds.
44. (Original) A method as in claim 27 wherein the filtration is ultrafiltration.
45. (Original) A method as in claim 27 further comprising minimizing extraction of solutes during filtration.

46. (Original) A method as in claim 27 wherein blood flows continuously through the filter during periods in which a blood pump is pumping the removed blood.
47. (Original) A method as in claim 27 wherein excess water removed from the blood flows intermittently from the filter.
48. (Original) A method as in claim 47 wherein a valve in a flow path from the filter for removal of excess water cyclically stops and starts the flow of excess water from the filter.
- 49 through 69 (Cancelled).